Venous thromboembolism: recognizing and reducing the risk to inpatients

(See cover story.)

References:
4) http://www.jointcommission.org/

Do you know what Dr William Carlos Williams was thinking about when he wrote:

So much depends upon
a red wheel
barrow

glazed with rain
water

beside the white
chickens.

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THE INPATIENT TIMES

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Venous thromboembolism: recognizing and reducing the risk to inpatients

Venous thromboembolism (VTE), which includes DVT and PE, is estimated to cause >250,000 hospitalizations per year and the mortality rate associated with PE can reach 17%. An important consideration is that PE is regarded as the number one preventable cause of death in hospitalized patients, accounting for up to 10% of all inpatient mortality. Thromboprophylaxis with a variety of pharmacologic agents (low molecular weight heparins, unfractionated heparins, fondaparinux, and warfarin) has been shown to reduce the incidence of VTE in patients who are at risk.

Most hospitalized patients have one or more risk factors for VTE. While high-risk groups can be identified, it is not possible to identify prospectively which specific individuals within a group will experience a VTE event. In addition, surveillance programs which identify patients who have sub-clinical VTE are an ineffective method to reduce clinically important VTE events. As such, identification of patients at risk and the implementation of appropriate preventative strategies are the most appropriate strategies for reducing the burden of VTE in the hospital.

Despite the recognition of elevated risk, along with the substantial scientific evidence for thromboprophylaxis, a significant improvement in the application of VTE prophylaxis measures is needed. In a prospective registry study of >5000 patients, only 42% of patients who had experienced a DVT had received appropriate prophylaxis within the previous 30 days. Of the patients diagnosed with DVT, 50% were non-surgical. While it has been long recognized that surgical patients have an elevated risk for VTE, these results highlight the fact that a significant proportion events will occur in medical populations.

In light of the risk of VTE in inpatients, the importance of prevention, and the current underutilization of appropriate preventative strategies, the NQF and JCAHO collaborated on a project to standardize performance measures for preventing VTE. Several of these measures addressing the identification of patients at risk and implementation of appropriate thromboprophylaxis may go into effect in 2007.

System-wide measures are being developed to address these proposed core measures, however, physicians must continue to do VTE risk assessment. While it is clearly recognized that the presence of multiple risk factors increases the overall risk for VTE (i.e. risk factors for VTE are additive), there is little data on how each of the risk factors formally interact with each other. As such, the current risk stratification scheme recommended at BMC utilizes a group-specific prophylaxis approach. Patients are classified as having one of four levels of risk for VTE (low, medium, high, highest) depending upon certain characteristics. This risk scheme (as well as pertinent risk factors), along with recommended thromboprophylaxis measures for each level of risk, can be found in the “VTE Prophylaxis and Treatment” medication guideline located on the BMC pharmacy website (http://www.internal.bmc.org/pharmacy/guidelines/guidelines_index.html). Questions regarding the risk stratification scheme or the appropriate use of various anticoagulants for thromboprophylaxis can be directed to Toby Trujillo, Pharm.D. (Pager #1072), clinical pharmacy specialist in cardiology and anticoagulation.

NB: Selected references for this article are available on the back of this issue of The Inpatient Times
Vancomycin, unlike aminoglycosides, does not exhibit concentration-dependent killing. The height of the peak concentration is not correlated with outcomes so measurement of peak drug levels is generally not helpful. Vancomycin efficacy is related to time above the minimal inhibitory concentration (MIC) of the drug. Mic levels can be used to judge whether the vancomycin is adequately dosed for a particular infection as well as to monitor for toxicity. Vancomycin toxicity is infrequent when used alone but increases significantly when the patient is being treated with another nephrotoxic agent such as gentamicin or cyclosporine. Trough levels may also be useful when treating patients with unstable renal function, treating deep-seated infections (such as osteomyelitis, pneumonia or endocarditis), or treating patients on dialysis, who are obese, or who will be on a prolonged course of therapy (>14 days).

The trough level should be between 15 and 20 mg/ml when treating pneumonia, meningitis, osteomyelitis, or endovascular infections. For other infections, a trough level of 5 to 15 mg/ml is considered adequate. A trough level should be drawn approximately one hour before the third vancomycin dose to ensure a steady state drug concentration has been reached. After a medication-utilization evaluation performed at Boston Medical Center in 2004, it was evident that the use and monitoring of vancomycin at our hospital was not optimal. A prospective pharmacy-based monitoring service was implemented in 2005 to improve vancomycin utilization and monitoring. The Antibiotic Management Team monitors specific patients on vancomycin therapy. Patients are selected based on their expected duration of therapy and indication for treatment. The pharmacists make recommendations to the primary team on monitoring and dosing. If you have questions about vancomycin treatment of your patient, or believe your patient should be monitored by pharmacy, please contact the Antibiotic Management Team at pager 8523 or see the vancomycin IV guideline at www.internal.bmc.org/pharmacy/ under “medication guidelines.”

Vancomycin is most frequently used antibiotics in the hospital. Beta-lactam-resistant gram-positive organisms are now routine causes of both nosocomial and community-acquired infections. For example, nosocomial pneumonias caused by methicillin-resistant Staphylococcus aureus (MRSA) or prosthetic device infections, often caused by MRSA or methicillin-resistant Staphylococcus epidermidis are increasingly common. In addition, many studies now indicate that the majority of staphylococcal community-acquired skin and soft tissue infections are caused by MRSA. Thus, at least vancomycin use at hospitals have met with limited success. At BMC, vancomycin is appropriate empiric treatment for patients suspected of having a serious gram-positive infection, particularly with staphylococci. Vancomycin use is not indicated for continued empiric use if cultures do not yield beta-lactam-resistant organisms or for routine prophylaxis for patients on dialysis, with indwelling catheters, or for dosing convenience in patients with renal failure. Remember, if the organism is sensitive to a beta-lactam agent, beta-lactams are the superior antibiotics and are associated with better patient outcomes. Treating patients with a single blood culture positive for coagulase-negative staph with vancomycin is also not appropriate in most cases. Eliminating this practice is an important and easy way to reduce vancomycin use. Once the clinician opts to use vancomycin, often the next decision is whether to add gentamicin or rifampin for synergy. For serious infections caused by enterococci, if high-level gentamicin resistance is not present, treatment with both vancomycin and gentamicin is indicated. Vancomycin should be combined with gentamicin and rifampin when treating prosthetic-valve endocarditis caused by S. aureus or coagulase-negative staphylococci.

Vancomycin with rifampin is recommended for prophetic joint infections. Use of combination therapy in other settings is controversial. One issue that causes confusion is when to draw vancomycin serum drug levels. Peak serum drug levels are not recommended.

Establishing Goals of Care
Case scenario:

Mrs. Jones thinks to herself: “I have to say that I am feeling slightly better today. Yesterday, I felt like this was the end!! I know I had been feeling sick for a few days but last night was horrible. I could not catch my breath. Then Dr. Goode had me come check on me and I was called 911. They told me in the ER that I had pneumonia!! I remember that my aunt had pneumonia and died from it. She had to be put on that horrible breathing machine for days before she passed away at the nursing home. Am I going to need a breathing tube? I am so scared.”

Doctor: “How are you feeling now Mrs. Jones? You have pneumonia and we have you on IV antibiotics and will discharge you tomorrow if your white count comes down and your fever does not spike. We will change you to PO antibiotics and then send you to rehab. Any questions?”

Mrs. Jones thinks to herself: “Any questions!! On my God, I am going to die. These doctors are sending me to a nursing home. That’s where Aunt Verna went after she had the pneumonia!! I hope my WHITE COUNT comes down, what ever that means. IV, PO, what are they saying? How did I get pneumonia? Did I get it from my cat? What is going to happen to her if I go to the nursing home?"

Mrs. Jones is our “average” patient who gets admitted to the hospital. Though the care team is successfully treating her acute illness, no one has engaged her in a discussion about goals of care. Treating the patient is obviously the priority but what comes after that?

The challenge of modern hospital medicine is providing excellent care in the face of high patient acuity. For one, older patients, establishing goals of care early in a hospital admission is essential to providing excellent care. In developing goals of care with patients, we need to determine what they need from us in order to get back to their lives at the same level of functioning, if not better.

References:


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Did your patient not get a test ordered, get a wrong medication, miss a dose of medication, or have another adverse event while on your service?

Get to the bottom of the system issues that permitted it to occur.

File an incident report.

Click “Incident/Medication Safety” tab at www.internal.bmc.org.

It’s not blame and shame, it’s getting to the bottom of the problem. Help us out.
Interns! Your days are numbered!
Making the transition to resident

“I do the admissions, write the orders, talk to the consultants, call the PCP, and meet with the family, and type the discharge summaries. I even do all the rectal exams! What does the resident do all day?”

The transition to becoming “the resident” is complex and it does not happen on that hallowed last day of internship when you sign out your pager to the next person foolish enough to have signed the contract to do your current job. It is a process and one that all interns should be thinking about and beginning now.

Think back on the residents you’ve had this year. The good, the bad, and, well, the ugly. What made them so? Great residents are leaders, role models, teachers, helpers, cheer leaders, supporters, organizers, attending-blockers, admission blockers (ahem…), facilitators, as well hopefully as thinkers, and savvy and more experienced clinicians. Residents have a style, a way, that is their signature; but like signatures, some are messy and uninterpretable and others are clear and legible. Some residents are disorganized, unhelpful, and do not facilitate learning on the team while others helped you develop a clear plan and course, educating you along the way.

You cannot hope that the skills of being a resident will just arrive by FedEx in late June. It takes thought and practice. Here are a few tips to ease that transition.

• Start now. Think about the residents with whom you have worked who you liked and did not like. Mentally catalog their attributes and begin actively to identify ways to include the positive aspects in your style and avoid the negative. Use all that mental energy you used at the beginning of the year to try figuring out how to be an intern and channel it into learning to be a resident.

• Ask hard questions. Remember, at the beginning of this year, you had to struggle to figure out how to replete potassium and to know which bowel prep to give. Move on. Don’t only ask what happened to your patient and how you can fix this problem. Ask why it happened and what you can do to prevent it from recurring. Look at the big picture. You are good at treating asthma exacerbations but why did this patient have her 3rd one this year? Can you prevent a 4th? These big picture questions are often the most interesting ones.

• Read. Now that you don’t have to take time to run down to the ED to steal guaica fluid to do your rectal exams (ahem…), you have a bit more time… and also a bit more responsibility to read so you can answer the why questions and go beyond superficial understanding.

• Teach. Be one of those residents who teaches a little everyday. This doesn’t just happen, you have to plan it. Decide: “I’m gonna be one of those residents who spends 5 minutes at the beginning of rounds everyday teaching something. Everyday, state it as a goal for yourself to team. Then do it.

• Challenge your colleagues. Do not accept everything you are told as the gospel. Review the primary patient data. Ask for evidence and reasoning. Learning how to think about and approach a problem is every bit as important as understanding the evidence. If you don’t understand the reasoning, you cannot help your team apply the evidence appropriately.

• Foster communications. You live in a program of trickle-down communications. The attending rounds everyday teaching something and then you must pass on the “orders” to your team. Be good about making sure they aren’t orders but rather explanations of the decisions. Use the experience as a chance to teach your team and solidify your understanding of the reasoning behind the plans. Keep the lines of dialog in all directions open at all times.

• Look out for your team. You have to be coach, quarterback, and cheerleader. You must devise strategies to keep your team running and learning and, hopefully having some fun.

I hope that this will be food for thought as you make the huge transition from intern to resident. It takes work but there are a lot of people around to support you. It’s normal to be nervous. Focus on how you will give your patients a much better quality of care and keep them alive to reap the benefits. This goal can be achieved by simply implementing well-established, evidence-based, best practices in heart failure care as laid out in the recent American Heart Association/American College of Cardiology and European Society of Cardiology guidelines. The lion’s share of heart failure spending is on hospitalizations, an obvious target for improving care while reducing cost. An efficient, organized approach to the hospitalized patient will improve care while reducing cost. An efficient, organized approach to the hospitalized patient with heart failure will double in your working lifetime. Nor is this a benign condition – heart failure has an overall mortality risk greater than that of many major malignancies.

Despite these grim statistics, there are encouraging signs that we are making progress in our battle against heart failure. Just three decades ago, our sole weapons were diuretics and digoxin. Now we have a whole armamentarium at our disposal, ranging from beta-blockers to biventricular pacemakers. We no longer even require the failing heart to be able to sustain life – we can implant a ventricular assist device or a total artificial heart, and indefinitely.

These advances have come a cost: the price tag for heart failure now exceeds $29 billion dollars a year in the United States, more than the gross national product of at least 84 countries. Our challenge is not to deliver the best technology that money can buy, but to deliver effective health care that minimizes the number of people that need this technology.

So how best can we deliver on the holy grail of cost effective heart failure management? The basic tenets of care still hold – improve your patient’s quality of life and keep them alive to reap the benefits. This goal can be achieved by simply implementing well-established, evidence-based, best practices in heart failure care as laid out in the recent American Heart Association/American College of Cardiology and European Society of Cardiology guidelines. The lion’s share of heart failure spending is
Hyperglycemia during enteral feeding

Patients managed with enteral (i.e. oral or tube fed) nutrition are often hyperglycemic in the hospital, and are at risk for persistent hyperglycemia especially when feeding is continuous. This occurs even in patients who were previously normoglycemic. Although there have not been studies to address the exact mechanisms, it is probable that continuous nutrition places a unique demand on pancreatic beta cells in patients with underlying beta cell dysfunction and/or insulin resistance. As a result, many patients require insulin therapy while receiving enteral feeds.

The most effective and flexible regimen is continuous intravenous insulin per a hospital-specific guideline. These guidelines or protocols are currently only available in the intensive care unit. Intravenous insulin is titrated while a patient is receiving continuous feeding, and therefore incorporates all three components of insulin therapy into one intervention: basal, nutritional, and correction. However, when an insulin infusion is not available/feasible, regimens using scheduled subcutaneous insulin injections can be very effective.

Tube feeding should not be started until appropriate adjustments have been made in the insulin dose(s) and glucose under control. Likewise, if glucose control deteriorates during enteral feeding, the tube feeding rate should not be advanced until the glucose level is again within goal range. As is always the case in treating hyperglycemia in the hospitalized patients, patients on tube feeds should receive a combination of basal and nutritional insulin. One way to do this is to administer an effective basal insulin regimen with glargine before tube feeds advance. The basal insulin requirement can be calculated using the patient’s weight. The average inpatient requires between 0.2-0.6u/kg per day of basal insulin, either given as glargine once daily or NPH split q 6 or q12 hours. When dose correctly, basal insulin should not cause hypoglycemia when continuous calories are unexpectedly interrupted.

Basal insulins should not be held when nutrition is stopped (which often happens), although NPH can be reduced by 1/3 or 1/2. All adjustments made as the rate is advanced should be made using a short-acting insulin regimen. Titrating the short-acting nutritional insulin, rather than the basal insulin, minimizes the risk of hypoglycemia that could result from a long-acting insulin preparation following unexpected discontinuation of tube feeding. Nurses can easily be instructed to hold the “standing” nutritional insulin when tube feeds are stopped. Regimens using NPH mixed with regular insulin given together every 6 hours, have been well described for use when tube feedings are administered continuously over 24 hours. I find that this regimen is often highly effective, especially for patients with significant insulin resistance who require > 60 units of insulin/day to reach control on continuous tube feeding.

Nocturnal enteral feedings require additional coordination on the part of the physician and nursing staff. Observational evidence indicates that NPH offers the best glycemic control in nocturnal enteral feedings; however, because the peak action of NPH is delayed if it is administered when enteral feedings are initiated, short-acting insulin must be added at the start of tube feeds to cover the carbohydrate exposure during the first several hours. Dosing is determined by frequent monitoring of blood glucose (every 2 to 3 hours the first few nights). Which short-acting insulin (lispro vs. regular) is best to use for patients receiving enteral feeds? In general, lispro should be reserved for patients on bolus feedings, whereas regular insulin every 6 hours is more appropriate for continuously fed patients.

Plight of the night float: Ownership vs. shift work

“No one died overnight.” Ever gotten that somewhat sarcastic sign-out from the night float? Pretty low bar, eh? How often have you had to repeat the night float history because the H&Ps had been completed or just wrong? Why does this happen? These are our own residents; we can’t blame this one on another department. We own this.

Ever since the 80 hour work week has become the national standard – arguably a very good advancement for house officer training, but not without its down side – night float systems have become quite common around the country. Yet, few programs have licked the problems inherent in the first paragraph.

We all know that certain residents under certain circumstances will do a great job on night float: take full responsibility for owning the initiation of the evaluation and treatment of the patient, document their thinking in the notes, and even follow-up the next day to find out what has happened to “their” patient. Other residents under other circumstances will not do this, seeing their primary responsibility to get the patient safely through the night so the day team can do the real evaluation.

No one argues that when night float is being done with admissions, cross-cover, and medical consultations there is a lot of time to put into lengthy dissertations on the differential diagnoses of their admissions. This is a systems issue that will need to be addressed by the hospital, Department of Medicine, and residency office.

But there is still that human variability noted above. What makes some residents on night float outperform others? I would argue it’s all about ownership.

How many times have you stayed at a hotel and made a mess and not cared? You don’t mind if the housekeeper cleans up after you then next day. But at home, it is the same with messes when you know your parents or significant other are coming over? You home (even if you rent) is about ownership. It’s yours, part of your identity.

Let’s not kid ourselves. Night float generally is a drag. You admit all night; you miss all the conferences (read: free food), and all your friends are sleeping when you want to go have fun. It’s not easy. But for that brief period, you must own the nights as your colleagues own the days. Make the patients yours. Remember, it is the least direct supervised experience you will have. Take advantage of the autonomy to develop your medical reasoning skills. Here are a few tips to help you with this:

• Take pride in your work. Give clear and thoughtful presentations in the morning to the team. The receiving attending, who may or may not come into the H&Ps, reflects your work ethic. Look at it as an opportunity for you to give the team a “totally packaged” patient as you might want if you were on the receiving end of a new bolus of patients. Consider yourself a part of every team to which you admit.

• Ask for follow-up on your patients when you get sign-out the next night. Find out what happened.

• Read about interesting cases you see while on night float. This will keep the learning alive in real time.

• Ask for feedback on challenging cases from the attending who accepted them. Feedback is the best way to identify room for improvement in your reasoning and medical skills.

• Ask for help. Yes, I mean at 3 in the morning! If you are stuck or confused by a patient, call the accepting attending. That is why our pagers are on 24/7. Please use them. We are medically responsible for the patients from the minute they are assigned to us so let us know if there are questions we may be able to help with.

Being a good night float resident is challenging. Developing a sense of ownership for the patients you admit will help you strive to perform the best you can while others tackle the significant system problems.
Ask and you shall receive: RESCUE Clinical Skills

At a recent focus group discussion, several residents stated that not enough time was spent on bedside clinical teaching by attending physicians. They also questioned the assumption that residents had completed their learning of clinical skills and did not need any more teaching on this subject. The group had many suggestions on inclusion of regular, systematic physical exam teaching for junior and senior residents. As a result of this discussion, we engaged in an experiment substituting some inpatient morning reports for bedside physical exam morning reports. These sessions consisted not only of patient exam but also a discussion of the meaning and significance of the findings as well as tips and tricks to elicitation of findings. These sessions were very well received by participating residents and they clamored for more. Hence we are pleased to inform our residents that bedside morning reports focusing on physical exam are to become an integral part of resident clinical teaching starting July, 2007. We have coined an appropriate eponym for this curriculum, “RESCUE CS”: RESident CUrriculum for Excellence in Clinical Skills, henceforth to be referred to as RESCUE. An enthusiastic RESCUE team of faculty will be teaching these morning reports. The teaching will be targeted towards an advanced level of learners and sessions will be resident only morning reports. More details of this curriculum will follow shortly.

I enclose some quotes from our residents and thank them for pushing us to expand our teaching horizons: “The demise of the physical exam is a self-fulfilling prophecy being advanced by those lacking confidence in their physical exam skills. The role of physical exam is as important today as it was at the time of William Osler and directs clinical judgment and investigations. To avoid cheating the present day students and residents of valuable skills and to ensure good patient care, the teaching of physical exam skills needs to obtain greater importance. “

— continued

I “used to merely go through the motions of the cardiac exam, being pleased with myself when I detected a slight murmur. Rarely did this ever lead to a concrete diagnosis, likely due to a combination of insufficient practice and inadequate training. Now I evaluate the JVP on every patient, palpate for PA taps and RV heaves, and differentiate between high and low pitched heart sounds – later using this constellation of findings to accurately diagnose cardiac pathology. All it took was an attending well-versed in the art of physical diagnosis and bedside teaching, and an enthusiastic intern thirsting to improve. But as I was always told by my high school basketball coach, “practice doesn’t make perfect, but perfect practice does.” Going through the motions of the physical exam, if done incorrectly, can be a complete waste of one’s time. Good bedside teaching can help tease out these intricacies and elevate an adequate resident to excellence.”

In terms of terms of teaching and potential weakness at BU / BMC—physical exam, I think. We have a couple of classes as students and then when we get to be interns there’s a certain expectation that we automatically learn, our physical exams have miraculously gotten better, but that’s something that can always be improved even as senior residents and onward but we really don’t get that much physical exam teaching.”

You asked and you shall receive.

S Raman

The Inpatient Times encourages all readers to submit articles for consideration to Jeff Greenwald

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Direct observation of trainees

The ABIM and other organizations rely on teaching faculty and residency programs to assess the knowledge, skills, attitudes, and values of students and residents, particularly those that cannot be tested adequately by a written examination. Attending physicians have many opportunities during daily work to observe and evaluate the performance of trainees. Bedside teaching and direct observation of patient-trainee interactions are key in assessing trainees’ competence. The use of multiple observations by several attendings can enhance the reliability, validity and quality of trainee assessment, particularly in the following areas:

1. Confirm and augment key historical facts and physical findings elicited
2. Assess trainee understanding and synthesis through case presentations and discussions
3. Evaluate demonstration of appropriate interpersonal skills clinical reasoning, decision-making and diagnostic abilities
4. Assess professional behaviors of respect, compassion, integrity during interactions with patients, physician and non-physician colleagues
5. Evaluate ability of trainees to identify deficiencies in their own performance and respond to feedback

Feedback:

Both verbal and written feedback are fundamental to the continuing professional growth of residents and students. During and at the end of all rotations, attendings should give trainees a critical appraisal of their clinical competence reinforcing their strengths and identifying areas for improvement.

Direct observation cards (DOC)

DOCs can facilitate timely feedback to the residency program. These forms are designed to fit conveniently in coat pockets. These cards will help to comprehensively assess trainees at regular intervals and translate that information onto evaluation forms. All attendings on the inpatient rotations are expected to complete these cards, provide substantive comments, and return this information to the program office.

Competencies to be observed:

- History taking
- Physical exam
- Physician-Patient communication

Logistics:

- Inpatient attendings including units are requested to complete DOCs: 1-2 observations/ trainee/ward block. This includes interns and residents. Students will be added to shortly.
- DOCs will be handed out during inpatient orientation meetings or at section meetings.
- Attendings will hand back cards to the Program Directors at end of block meetings or Maria DeOliveira in the Residency Program Office.
- Observations are not meant to add to the workload of attendings or trainees. They should occur in context of daily patient care. Exercises should be brief; 5-10 minutes and can be snapshots of single or multiple interactions.

Next steps:

1. Over the next several months, specifically trained faculty will join ward attendings for 10-15 minutes during morning rounds, complete DOCs along with the attending, and have a short debriefing session. This will provide one on one bedside practice.
2. Starting July 2006, workshops will be organized for ward attendings to discuss and practice inpatient teaching skills.

Reminder:

- This is NOT another evaluation form; in fact there are no rating scales. Multiple observations will provide comprehensive feedback to trainees who can monitor their progress longitudinally.
- This is NOT added work for attendings. It is documentation of what is already being done.

We encourage all ward and unit attendings to complete trainee observations during their inpatient blocks. We also hope that housestaff and students will remind their attendings that DOCs need to be completed. If you have any questions or need clarification, please contact Subha Ramani at sramani@bu.edu.

S Raman

Continued →
Handoffs: would we win the Heisman?
“Gentleman, it is better to have died as a small boy than to fumble this football”
- John Heisman (1869-1936) American football coach for whom the Heisman trophy is named.

Handoffs, or transitions in care, are particularly vulnerable times in which the propensity for medical errors increases. One of the Joint Commission National Patient safety goals is to implement a standardized approach to “handoff” communications.

Sign-outs from one doctor to another can create huge gaps. In fact, a study at Brigham and Women’s showed that being covered, physically or mentally, by a different physician was a far better predictor of hospital complications and errors than was the severity of the patient’s illness. So what are some ways to improve communications to create a precise handoff and thus improve the safety and care of our patients? While physician-to-physician handoffs have been minimally studied, one conclusion is certain. The safest method of transferring responsibility for a patient is the face-to-face handoff. This means that the off going physician talks directly with the on duty physician regardless of the time and setting. Communication failures in written or verbal sign-out contribute to these errors. A sentinel event is an unexpected incident related to a systems deficiency which leads to death or major loss of function. Failures in communication between healthcare personnel account for over 60% of root causes of sentinel events. An Australian study involving 28 hospitals reviewed the cause of adverse events and found that communication errors were the leading cause, associated with twice as many deaths as was clinical inadequacy.

The airline industry has long studied the issue of handoffs and has collected data about safety and interpersonal interactions. Members of air traffic control and crew members practice and are observed employing skills needed for effective handoffs. In medicine, very little has been studied and often our handoffs or sign-outs consist of an email or an illegible scrap of paper. The very few studies which have examined the handoff process in medicine confirm that it is variable, unstructured, and prone to error.

In any effort to reduce duty hours for medical trainees, many handoffs are involved. In our own Internal Medicine residency, we can see this in the form of night float coverage, night float and day float admissions and weekend coverage. Thus the quality and safety of the “sign out” gains even more importance. In one of the few studies of “sign outs” in academic hospitals, Arora et al studied the “sign-out” of inpatient care at the University of Chicago. Using a survey developed to study aviation accidents, 30 interns were interviewed after a night of cross cover to solicit information on communication failures during verbal and written sign out. 25 distinct adverse events were reported, all of which were the result of communication failure in written or verbal sign-out. The major communication failures could be placed into two categories. The first included content omissions such as failure to report an active medical problem. The second communication failure had to do with the process itself. Often the interns cited lack of face-to-face communication as a factor in a critical incident. Anecdotally, I am sure we can all think of an incident where a more effective sign-out would have lead to better care or at least a more efficient workflow. Interestingly, we never receive formal training on communication or effective handoff. In fact, one survey revealed that only 8% of medical schools teach how to handoff patients in a formal didactic session. Our “hand-me-down” process of learning handoffs may not be ideal considering the critical clinical need of lack of proper communication. In other high stakes fields such as the airline industry or the military, a standardized form of communication is ingrained into the culture. In part II of this article (see opposite page), some elements for successful handoffs will be reviewed.

References: